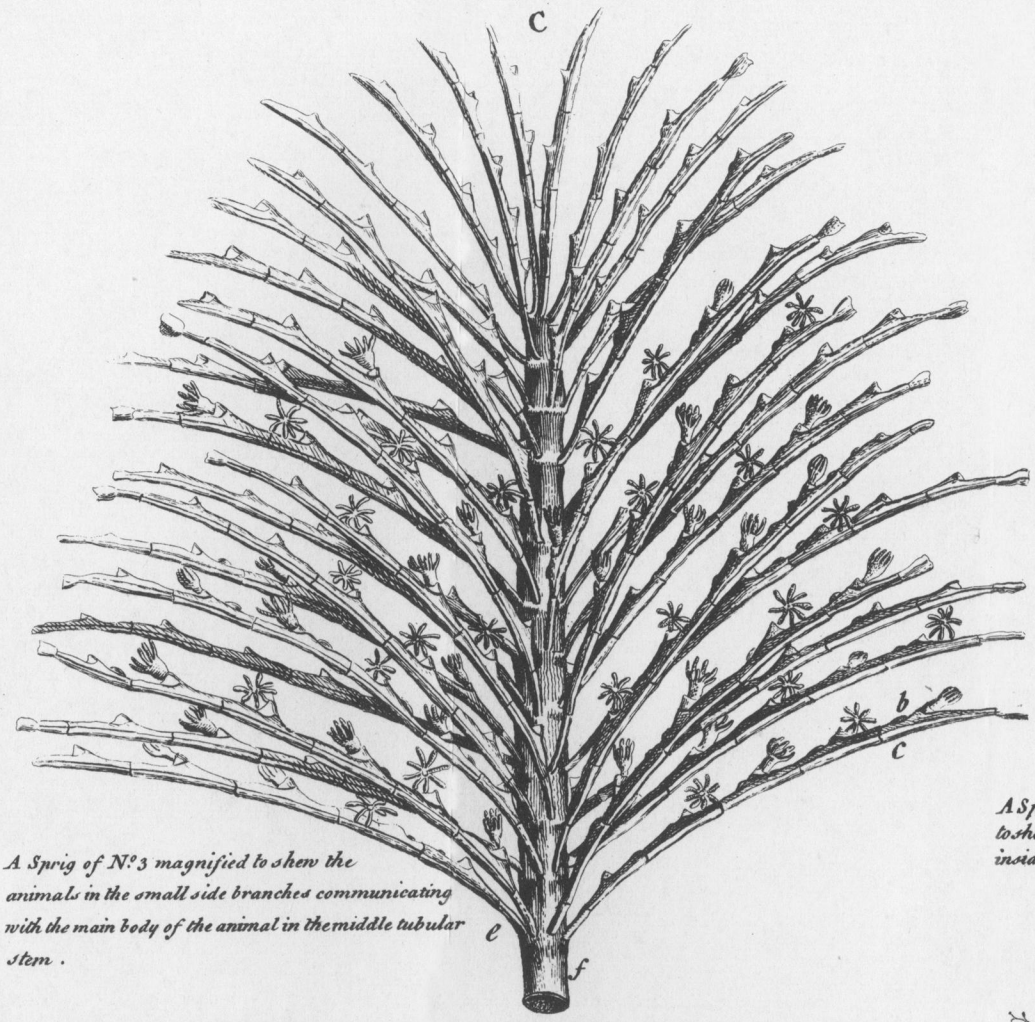
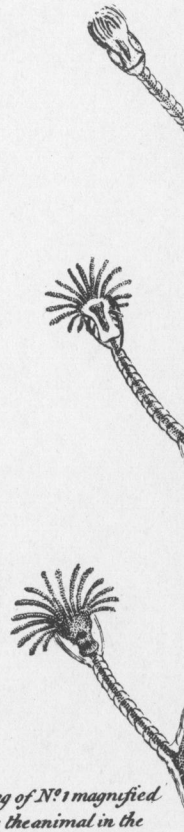


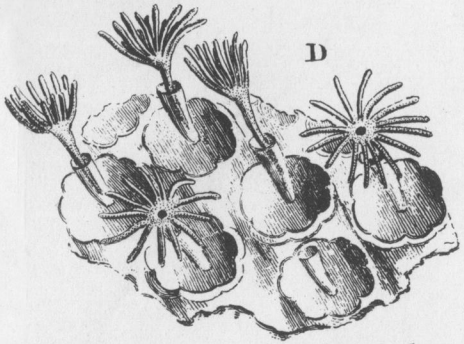
A Sprig of N.o 3 magnified to shew the animals in the small side branches communicating with the main body of the animal in the middle tubular stem.



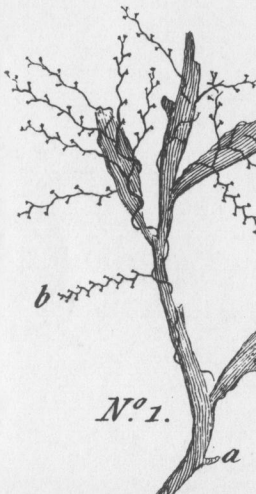
A Sprig of N.o 1 magnified to shew the animal in the inside of its horny skin.

Fig. N.o 4.

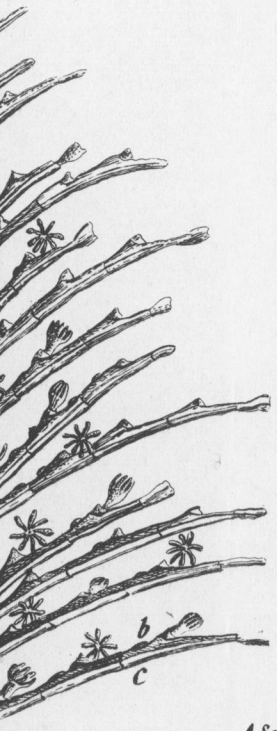
Cells of the common Sea Insect on a Fucus.

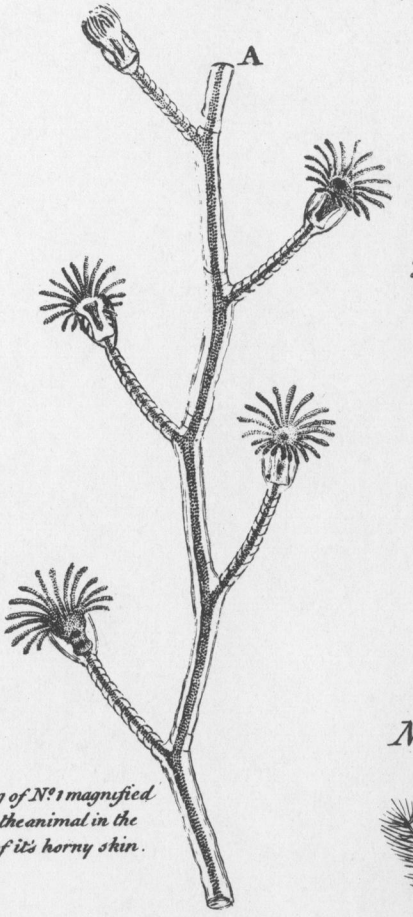


A few of the cells at N.o 4 magnified to shew the figure of the animals in them

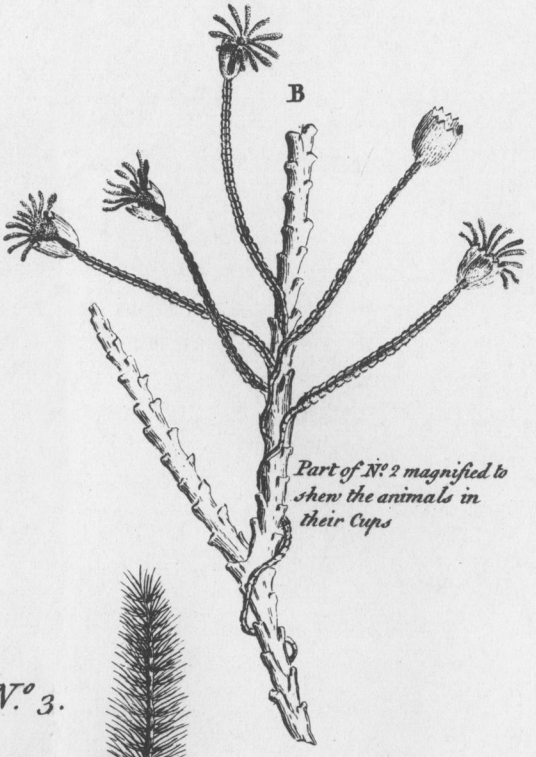


Knotted Sea thread Cor… climbing up a Fucus.





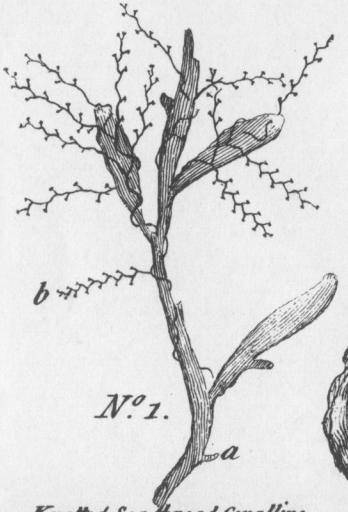
A Sprig of N.o 1 magnified to shew the animal in the inside of it's horny skin.



Part of N.o 2 magnified to shew the animals in their Cups

N.o 3.

ied to shew
them



N.o 1.

Knotted Sea thread Coralline climbing up a Fucus.

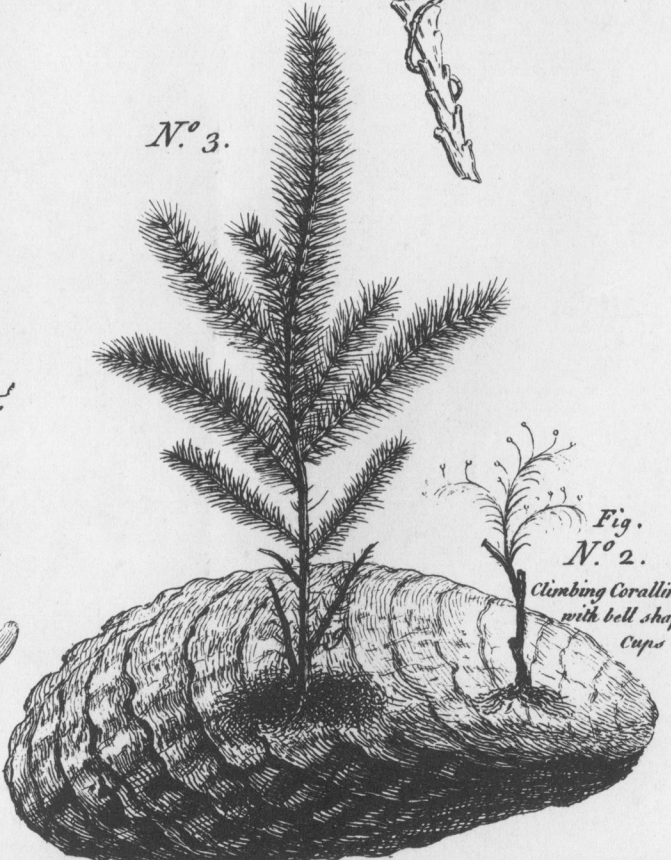


Fig. N.o 2. Climbing Coralline with bell shaped Cups

Branch'd Lobsters horn Coralline on an Oyster shell. J. Mynde sc

this animal was embedded, that I deſpair of finding any whole bones: But I think theſe fragments are ſufficient to ſhew, that the elephant was as large as that mention'd by Fentzelius, in theſe *Tranſactions*.

The apex of the tuſk, which I preſerv'd, and the acetabulum before you, were both found within twenty feet of the other bones mention'd, and are, as I apprehend, in better condition than they are, from their being taken up immediately upon being diſcover'd, and not left to be expos'd to the injury of the weather, and violence of the tides; which ſoon affects bodies ſo expos'd, after having lain under ground for ages.

LXXXIV. *A Letter from Mr.* John Ellis, *F. R. S. to Mr.* Peter Collinſon, *F. R. S. concerning the animal Life of thoſe Corallines, that look like minute Trees, and grow upon Oyſters and Fucus's all round the Sea-coaſt of this Kingdom.*

SIR,

Read June 13, 1754. THE doubts, that I find ſtill remain on the minds of many curious and learned men of the animal nature of corallines, on account of their beautiful ramifications, and regular plant-like appearances, determin'd me to perſuade our ingenious friend, Mr. Ehret, to accompany me to the ſea-ſide, that he might there be an eye-witneſs of what I had advanced to you, and many other

worthy members of the Society; and to make exact drawings of the ſeveral different objects, as they appear'd to him thro' the microſcope.

Accordingly, on Monday the third of this inſtant June, we ſet out, and arriv'd at Lewes in Suſſex that evening, and the next morning at Brighthelmſtone. The weather being very calm, and few fucus's or corallines being thrown aſhore on the beach, I hir'd a fiſherman, the next day, to take up ſome oyſters from an old oyſter-ground, that had been long diſus'd, lying about three or four leagues off to ſea, and where, by his deſcription, the ſhells were cover'd with great varieties of theſe minute tree-like corallines; with directions, that, as ſoon as he took them out of the ſea, he ſhould immediately put them into a bucket of ſea-water; but, unfortunately, he put the oyſters into a fiſherman's baſket; by which means, many varieties were dead, notwithſtanding we receiv'd them two hours after they were taken out of the ſea, and had them put immediately into ſea-water: However, by the oyſters lying on one another, ſome of the corallines were kept ſo moiſt, as to be perfectly alive, and briſk. In order to diſtinguiſh them more eaſily, we pluck'd them off the oyſters, and placed them in white earthen plates, and pour'd as much ſea-water over them as would juſt cover them: After we had let them reſt for a little while, to recover themſelves, we could eaſily diſcover, with a magnifying glaſs of an inch focus, which were alive, and which not: Accordingly, I cut off ſmall pieces of ſeveral of the livelieſt, and placed them in watch-glaſſes fill'd with ſea-water; theſe, after reſting a little while, I placed, one after another, on the ſtage of the microſcope.

The

The unuſual ſight ſo amaz'd our friend (who had his doubts), that he could ſcarce believe his own eyes; for he had hitherto imagin'd, with many others, that theſe corallines were vegetables, and only the receptacles of animals, as many other plants are, and not the proper caſes, ſkins, or coverings, of their bodies.

The firſt coralline that offer'd itſelf to our view, was *n*° 1. (*Plate* XXII.), where it is repreſented, in its natural appearance, climbing upon the podded fucus *a*, with irregular threadlike ramifications, as at *b*; one of which is exhibited magnified at *A*, in which we may obſerve a broad dark line in the middle of the tranſparent ſtem and branches. This is part of the tender body of the animal, and ſeems as a ſupport for its ſeveral heads and ſtomachs, with the many hands or claws belonging to each: For at the top of each of the branches we may obſerve a polype with twenty tentaculi, or claws, which do the office of hands, its mouth in the centre of them, and its ſtomach underneath, inclos'd in a fine tranſparent cup. The fine out-lines repreſent the horny ſkin, or outward coat, that ſerves this compound animal as a defence, in the ſame manner as the ſhells of teſtaceous or cruſtaceous ſea-fiſh.

The ſkin or covering of the arms, that ſupport the cups, is form'd in ſmall rings, which gives the animals the more freedom to move about dextrouſly in ſeizing their prey.

At letter *B* is the microſcopical repreſentation of a ſtill ſmaller coralline than the former; the natural ſize of it is expreſs'd at *fig.* 2. This creeps up, and twines round other corallines by ſmall vermicular tubes, and ſends out its curious ſlender arms irregularly:

larly: Theſe arms, in the microſcope, look like rows of the ſmalleſt beads of a necklace: To the top of each of theſe is fix'd a cup, for the reception of the polypes, the brim of which is curiouſly indented. Theſe we ſaw alive, and extending themſelves about in various directions.

Fig. n° 3. repreſents part of another coralline of its natural ſize, juſt as it appear'd expanded in a plate of ſea-water.

It is call'd, in Ray's *Synopſis*, ed. 3. *corallina ramoſa cirris obſita*; and by Doody, in Ray's *Synopſis*, ed. 2. *fruticulus elegans geniculatus cirris obſitus.* Letter *C* expreſſes a branch of this coralline magnified; where you may obſerve, on each capillary ſide-branch, rows of ſmall polypes, each with eight tentaculi, or claws, riſing out of little ſockets. The upper diviſion, or tube, of theſe little branches, as at *b*, appears full of joints, one to each polype; but we could eaſily perceive, that all the polypes were connected together, and communicate with the principal ſtem, or body, which is inclos'd in the middle tube. The under ſmall tube of the capillary ſide-branch at *c*, which runs parallel with the upper one *b*, and adheres to it, appear'd clear, hollow, and jointed.

This coralline ariſes from a tuft of ſmall irregularly-matted tubes, like a ſponge growing to an oyſter-ſhell, as at *g*; the ſmaller branches *e* are inſerted in circles round the larger branch *f*, at equal diſtances, like the plant call'd horſetail, or *equiſetum.* As we were obſerving theſe corallines, we perceiv'd, on one of them, a different-ſhap'd polype, which thruſted itſelf out of a ſmall funnel-ſhap'd pipe: This was inſerted

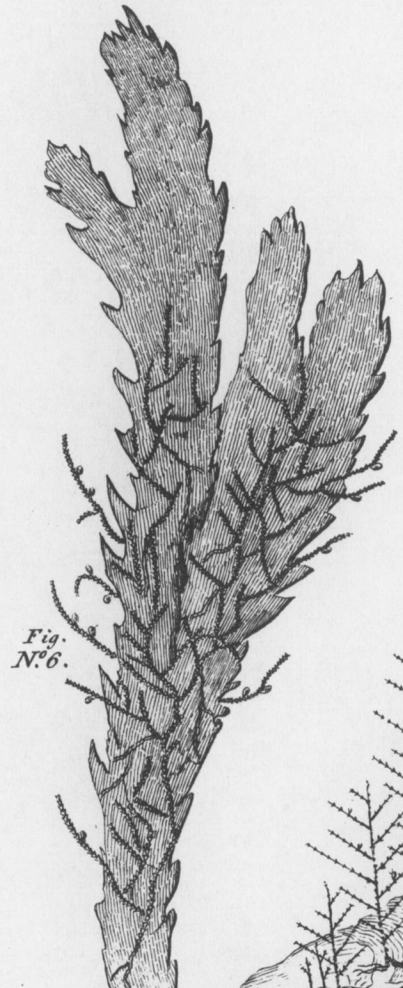
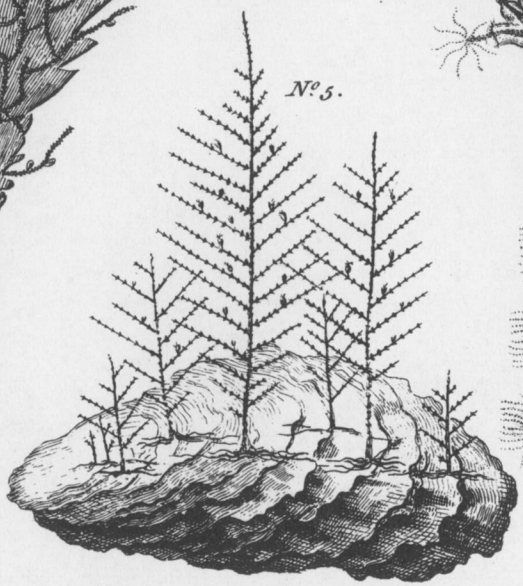


Fig. N°6.

Sea Oak Coralline creeping on a piece of a Fucus so call'd.



N°5.

Pomgranate flowering Coralline On an Oyster shell.

F

F

H

K

Fig. N°7.

Celliferous Coralline with angular edges to it's cells.

Sea Oak Coralline magnified to shew the animals in the stem and vesicles.

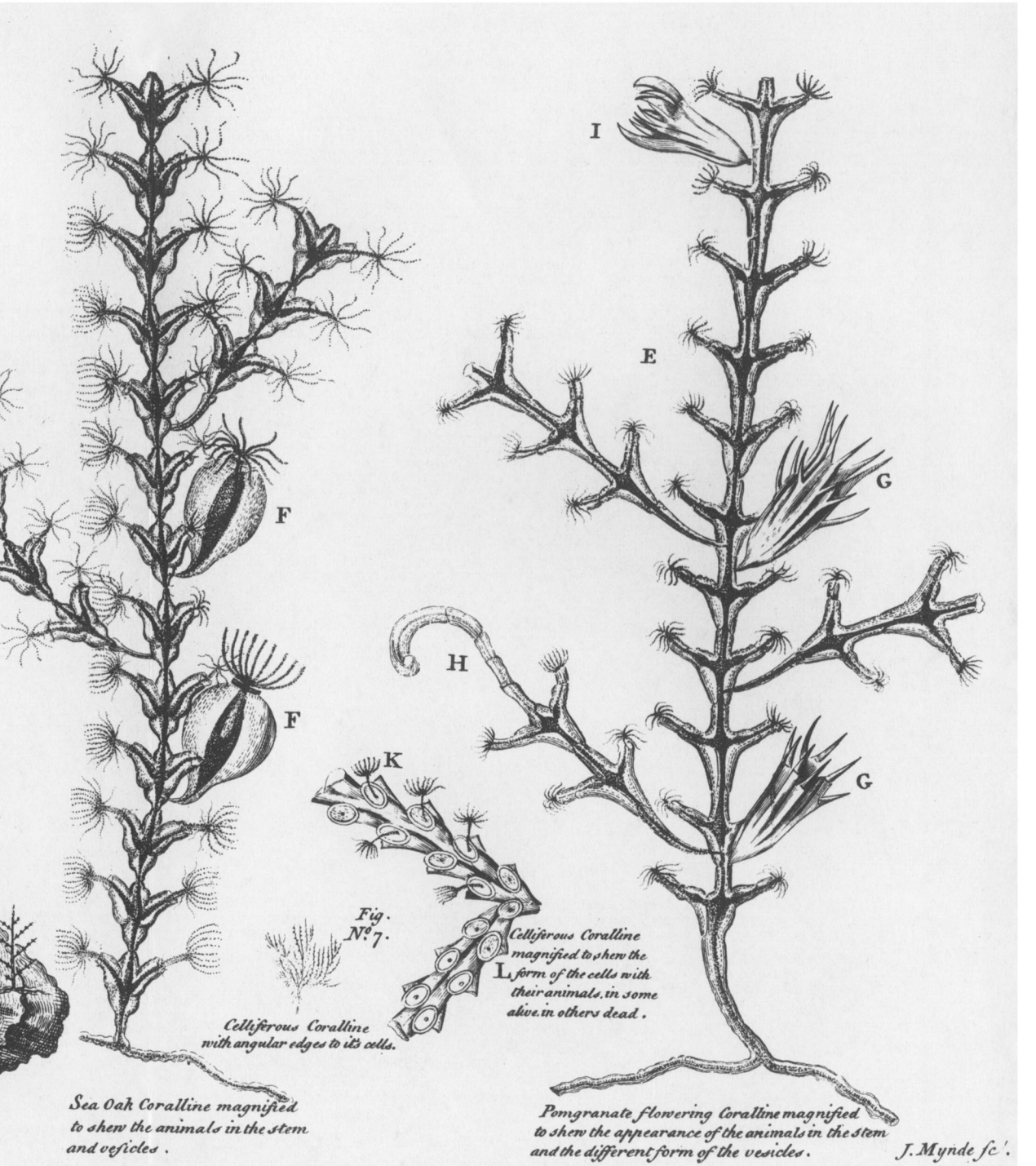


Fig. No. 7.

Cellifierous Coralline magnified to shew the form of the cells with their animals, in some alive in others dead.

Cellifierous Coralline with angular edges to it's cells.

Sea Oak Coralline magnified to shew the animals in the stem and vesicles.

Pomgranate flowering Coralline magnified to shew the appearance of the animals in the stem and the different form of the vesicles.

J. Mynde sc.

ſerted in a cell, whoſe brim, or border, was ſurrounded by little ſpines.

Theſe cells we obſerv'd to compoſe that ſpongy rough matter, which incruſts almoſt all marine ſubſtances, but chiefly fucus's. *Fig.* 4. repreſents the natural ſize of theſe cells on a fucus; letter *D* expreſſes the cells and polypes, with twelve tentaculi to each, as they appear magnified; where the animals are ſeen raiſing and expanding themſelves. When they are diſturb'd, they draw themſelves within their ſheath, or pipe, which cloſes on them, and ſink together into their cells.

The curious denticulated coralline at *n°* 5. *Plate* XXIII. has very much the appearance of a plant, at firſt view, even when it is magnified, as at *E*. This gave us a farther corroborating proof, that theſe extraordinary ſpecies of beings are animals: For we obſerv'd, that the ſmaller polypes, that extend themſelves out at the opening of every oppoſite denticle, or little projecting tube, are united at the bottom, or lower-part, to the fleſhy ſubſtance of the main body, that paſſes thro' the middle of each branch, or ſtem, and are ſo many different bodies united in one; acting like ſo many ſets of hands, placed in form of a circle, collecting food, each for a mouth in the centre, to convey nouriſhment to ſo many ſtomachs, which are fix'd in the ſwelling part, or bottom, of each denticle. This great ſupply of nouriſhment from all ſides, gives that great increaſe, and variety of ramifications, to this wonderful claſs of many-bodied animals.

Beſides theſe ſmall polypes, which compoſe the branches, theſe corallines ſend forth, from ſeveral

parts, many veſicles, of different ſhapes, at certain ſeaſons of the year, according to their different ſpecies.

Theſe veſicles are protruded from the outward ſkin or horny covering of theſe branched polypes, and from the inward or fleſhy part ariſes a larger polype; one of which occupies each of theſe veſicles.

Thus a coralline full of veſicles looks like a plant full of bloſſoms, which, after they have arriv'd at their perfect ſtate, fall off, with their capſules or veſicles, and become new-detach'd animals, to provide for themſelves; in the ſame manner as the falling ſeeds produce other plants.

Upon examining this coralline, we found, that the animals in the veſicles were dead; but, immediately afterwards, we had an opportunity of diſcovering the veſiculary polypes alive, in another coralline; which are deſcrib'd at *fig.* 6. in their natural ſize, and at letter *F* as they appear'd magnified. This ſpecies I have call'd the ſea-oak coralline, from its being moſt frequently found creeping on, and adhering to, the largeſt ſpecies of the *quercus marinus*, or ſea-oak fucus.

The veſicles of the denticulated coralline, letter *E*, are deſcrib'd as they appear'd full of ſpines at the top, and clos'd up, as at letter *G*.

The veſicles of the ſame ſpecies are more frequently found as deſcrib'd at *I*, where the ſpines are not unfolded: From this appearance, I have call'd it the pomegranate-flowering coralline, becauſe they nearly reſemble the opening bloſſom of the balauſtine, or double flower of the pomegranate.

The branches of this coralline are often obſerv'd to end in vermicular tubuli, as at *H*, which are much

of

of the ſame form with thoſe it begins with; ſo that theſe animals can, and do, change their ſhapes, for the ſeveral ends and purpoſes of their being; and this in a moſt ſurpriſing manner.

I had farther an opportunity of examining ſome of thoſe kind of corallines, which I call celleferous, from their having rows of cells diſpos'd in plant-like ramifications. The ſmall black ſpots in each cell, which I had conjectur'd before to be the embrio of a future teſtaceous animal. Vid. *Phil. Tranſ.* Vol. 48. *Tab.* VI. p. 115. I found now to be the contracted bodies of dead polypes; for we here ſaw ſome of theſe polypes alive, and extending themſelves out of their cells, as at *K*, *fig.* 7. and upon reviewing them, when they were dead, found they made the appearance of blackiſh ſpots in each cell, as at *L*, *fig.* 7. So that we have reaſon to ſuppoſe, that this ſpecies of polypes, that form theſe corallines, do change into teſtaceous bodies. But of this I do not doubt, that time, and more obſervations, will fully convince the curious. I am,

SIR,

Your moſt affectionate friend, and ſervant,

Lawrence-Lane,
June 13, 1754.

John Ellis.